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PATENT SPECIFICATION



Application Date: April 25, 1922. No. 11,630 / 22. **205,524**

Complete Left: Dec. 28, 1922.

Complete Accepted: Oct. 25, 1923.

PROVISIONAL SPECIFICATION.

Improvements in, and relating to, Golf-practising Machines and the like.

I, WALTER LANGMUIR WATT, of National Diamond Factories (Bernard Oppenheimer) Ltd., Lewes Road, Brighton, a Canadian subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to golf-practising machines and the like.

The object of this invention is to provide such a machine of a simple and compact construction, and one that is capable of varied adaptation either indoors or outdoors and by right-hand and left-hand players alike, and that will indicate the distance of the hit and its kind, that is to say, for instance, the length of a hit and whether it is a clean one or a mis-hit.

To this end, a machine embodying the invention, comprises, essentially, a turntable support carrying a spring or springs, or its or their equivalent, associated with a movable member in connection with the playing ball and a recorder, the construction and arrangement being such that when the ball is struck the energy is transmitted to the spring or springs or the equivalent thereof by the movable member, and to the support, which denote the distance the ball is hit and the type of stroke by, respectively, the compression or tension or action of the spring or springs or the equivalent, and the direction or directions in which the support is turned.

I will now describe, by way of example, one form of machine constructed in accordance with my invention.

I employ a support composed of a base and a standard. The base is in the form of a horizontally-disposed flat bar fashioned, intermediate of its ends, to produce an U-shaped portion depending vertically and constituting the standard for giving the requisite elevation of the machine with respect to the ground or floor upon which it is positioned for use,

and for effecting its attachment thereto. The attachment is accomplished by bending or twisting the arched or closed end of the standard and pivoting it in a fork projecting from a turntable, such as a disc revolubly mounted on or in the floor or on or in a post bedded in the ground. The maintenance of the horizontal position of the base under normal circumstances is affected by a spring interposed between, and connected to, the standard and the turntable.

Therefore, the support is free to turn in the horizontal plane by virtue of the turntable, and in the vertical plane by reason of the pivotal connection.

At each end of the base I fix a rectangular block. Between these blocks I situate a rod of circular section, securing its extremities to the respective blocks so that it is firmly supported and held stationary. I provide a movable member on the rod, such appropriately consisting of a block similar to the fixed end blocks. This movable member or block is designed to slide along the rod in either direction, and in so doing it may contact with the base whereby its stability or alignment is ensured. Normally, this slideable block is maintained in close proximity to one of the fixed blocks by a spiral spring freely encircling the rod and abutting at its contiguous ends against the slideable block and the distant fixed end block, the spring being of a type tending always to press the slideable block towards the adjacent fixed end block and, in consequence, oppose its movement towards the complementary or distant block.

At the inner face of the fixed end block distant from the slideable block, I anchor a spiral spring and mount a pulley horizontally. I also make an opening completely through the block. At the corresponding face of the slideable block, and at each side of the rod and spring, I mount a pulley vertically.

[Price 1/-]

These several parts are for the reception of a flexible connector, such as a cord. The cord is, at one end, fastened to the free extremity of the spring, and is then passed to and over one of the pulleys on the slidable block, whence it is led to and around the horizontal pulley at the fixed end block, thence to and over the other pulley at the slidable block, back to the fixed block, and through the opening therein, where it is secured to one ring of a double-ringed swivel. To the other ring of the swivel the ball is attached through the medium of a cord. The relative arrangement of the swivel and the block-opening is such that the swivel cannot pass through the opening.

The rod, spring and the allied parts are encased at the top and at one side by a cover connected to, and between, the fixed end blocks, the base forming the bottom closure. The remaining side is partially closed by a flat bar disposed between the fixed blocks to which it is secured, its depth and position being such that between its upper edge and the top cover, and between the base and the lower edge, a slot obtains. The outer face of the bar is graduated in linear measure to serve as a component of a recorder, the complement being constituted by a slide or indicator mounted upon the bar, its movement being permitted by the slots just mentioned. The slide or indicator is moved in one, or the recording, direction by the slidable block contacting with it, directly or indirectly through an arm; its return is performed by hand or otherwise independently.

Having described the construction of the machine, I will now explain its operation.

Assuming the various components are in the normal position, with the recording slide or indicator at zero, the machine, if required, is turned in the horizontal plane to meet the direction in which it is desired to make the stroke, and the ball is teed. When the ball is struck, the slidable block, through the medium of the interposed cord, is drawn along the rod against the action of the spring, and simultaneously the slide or

indicator, through the agency of the block, is pushed along its graduated bar. On the energy of the ball, which has travelled in the direct line of the stroke, being exhausted the spring re-acts and restores the slidable block to its original position, which likewise returns the ball for the next stroke. The slide or indicator remains in its new position recording the length of the hit, pending its return to zero. In addition to indicating the distance, should, for instance, the stroke be of a character resulting in the ball being sliced, topped, pulled or skied, this will be denoted by a displacement or turning of the machine, horizontally or vertically or both, from the original direction or position.

If the energy of the ball should exceed the resistance offered by the spring encompassing the rod, the spring interposed in the cord connection will operate to absorb it. In this case the effect is that of a hammer stroke and the indicator travels further than the slidable block, thus making the record.

From the foregoing it will be manifest that the mere detail construction of a machine incorporating the invention may be modified in sundry ways without, however, departing from its characteristic feature or main essential. For example, the standard, instead of being of an U-formation, may be a straight member depending from, and connected to, the base, which likewise may be straight, the standard being pivoted to the turntable as previously explained. Alternatively, the base may be straight, and pivoted directly to the turntable which, in turn, is secured to a block or pillar fixed to the floor or sunk in the ground, and of a height presenting the necessary elevation or altitude.

Again, instead of the base, blocks and covers being, as a whole, of a rectangular transverse section, they may be constructed to give a circular tubular section, a segmental portion being graduated and slotted to accommodate the recording slide or indicator.

Dated this 25th day of April, 1922.

MEWBURN ELLIS & Co.,
70-72, Chancery Lane, London,
W.C. 2.

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COMPLETE SPECIFICATION.

Improvements in, and relating to, Golf-practising Machines and the like.

I, WALTER LANGMUIR WATT, of National Diamond Factories (Bernard Oppenheimer) Ltd., of Lewes Road,

Brighton, a Canadian subject, do hereby declare the nature of this invention and in what manner the same is to be per-

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formed, to be particularly described and ascertained in and by the following statement:—

This invention relates to golf practising machines and the like of the kind comprising a turnable support carrying a spring or springs, or its or their equivalent, associated with a movable member in connection with the playing ball and a recorder, the construction and arrangement being such that when the ball is struck the energy is transmitted to the spring or springs or the equivalent thereof by the movable member, and to the support, which denote the distance the ball is hit and the type of stroke by, respectively, the compression or tension or action of the spring or springs or the equivalent, and the direction or directions in which the support is turned.

The object of this invention is to provide such a machine of a simple and compact construction.

I will now describe my invention with reference to the accompanying drawings whereof:—

Fig. 1 is a diagrammatic perspective view of one form of machine constructed in accordance with it, parts being assumed removed for the sake of clearness; and

Fig. 2 is a corresponding view with the said parts in position.

Fig. 3 is a side elevation of another form of machine embodying the invention, a portion being shown in section to illustrate a detail;

Fig. 4 is a broken longitudinal central section thereof on an enlarged scale; and,

Fig. 5 is a corresponding plan.

Fig. 6 is a transverse sectional elevation on the line A—A Figure 3; and

Fig. 7 is a sectional plan on the line B—B in the same figure.

Figs. 8, 9 and 10 are transverse sectional elevations, respectively, on the lines C—C, D—D and E—E of Figure 4.

Figs. 11, 12, 13 and 14 are diagrammatic sectional elevations representing modifications to which I will subsequently refer in detail; and

Fig. 15 is a central section of a playing ball, particularly applicable for use in and with the machine.

The same reference numerals are used throughout to designate the same or equivalent parts.

I will first describe the example shown in Figures 1 and 2 according to which I employ a support composed of a base 11 and a standard 12. The base 11 is in the form of a horizontally-disposed flat bar fashioned, intermediate of its ends, to produce a U-shaped portion depending

vertically and constituting the standard 12 for giving the requisite elevation of the machine with respect to the ground or floor upon which it is positioned for use, and for effecting its attachment thereto. The attachment is accomplished by bending or twisting the arched or closed end of the standard 12 and pivoting it at 13 in a fork 14 projecting from a turntable 15, such as a disc revolvably mounted on or in the floor or, as shown, on or in a post 16 bedded in the ground. The maintenance of the horizontal position of the base 11 under normal circumstances is effected by a spring 17 interposed between, and connected to, the standard 12 and the turntable 15.

Therefore, the support is free to turn in the horizontal plane by virtue of the turntable 15, and in the vertical plane by reason of the pivotal connection 13.

At each end of the base I fix a rectangular block, one being marked 18 and the other 19. Between these blocks 18 and 19 I situate a rod 20 of circular section, securing its extremities to the respective blocks 18 and 19 so that it is firmly supported and held stationary. I provide a movable member 21 on the rod 20, such appropriately consisting of a block similar to the fixed end blocks 18 and 19. This movable member or block 21 is designed to slide along the rod 20 in either direction, and in so doing it may contact with the base 11 whereby its stability or alinement is ensured. Normally, this slidable block 21 is maintained in close proximity to one of the fixed blocks—19 in the example—by a spiral spring 22 freely encircling the rod 20 and abutting at its ends against the slidable block 21 and the distant fixed end block 18, the spring 22 being of a type tending always to press the slidable block 21 towards the adjacent end block 19 and, in consequence, oppose its movement towards the complementary or distant block 18.

At the inner face of the fixed end block 18 distant from the slidable block 21, I anchor a spiral spring 23 and mount a pulley 24 horizontally. I also make an opening 25 completely through the block 18. At the corresponding face of the slidable block 21, and at each side of the rod 20 and spring 22, I mount a pulley vertically, one being marked 26 and the other 27. These several parts are for the reception of a flexible connector, such as a cord 28. The cord 28 is, at one end, fastened to the free extremity of the spring 23, and is then passed to and over one, 26, of the pulleys 26 and 27 on the slidable block 21, whence it is led to and around the hori-

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zontal pulley 24 at the fixed end block 18, thence to and over the other pulley 27 at the slideable block 21, back to the fixed block 18, and through the opening 25 therein, where it is secured to one ring 28^a of a double-ringed swivel 29. To the other ring 30 of the swivel 29 the ball 31 is attached through the medium of a cord 32. The relative arrangement of the swivel 29 and the block-opening 25 is such that the swivel cannot pass through the opening.

The rod 20, spring 22 and the allied parts are, as shown in Fig. 2, encased at 15 the top and at one side by a cover 33 connected to, and between, the fixed end blocks 18 and 19, the base 11 forming the bottom closure. The remaining side is partially closed by a flat bar 34 disposed between the fixed blocks 18 and 19 to which it is secured, its depth and position being such that between its upper edge and the top cover 33, and between the base and the lower edge, a slot 20 obtains, these slots being designated 35 and 36 respectively. The outer face of the bar 34 is, as indicated at 37, graduated in linear measure to serve as 25 a component of a recorder, the complement being constituted by a slide or indicator 38 mounted upon the bar 34, its movement being permitted by the slots 35 and 36 just mentioned. The slide or indicator 38 is moved in one, or the 30 recording, direction by the slideable block 21, contacting with it directly, or indirectly through an arm; its return is performed by hand or otherwise independently.

Having described the construction of 40 the machine, I will now explain its operation.

Assuming the various components are 45 in the normal position, with the recording slide or indicator 38 at zero, the machine, if required, is turned in the horizontal plane to meet the direction in which it is desired to make the stroke, and the ball 31 is teed. When the ball 50 31 is struck, the slideable block 21, through the medium of the interposed cord 28, is drawn along the rod 20 against the action of the spring 22, and simultaneously the slide or indicator 38, 55 through the agency of the block 21, is pushed along its graduated bar 34. On the energy of the ball 31 being exhausted, which has travelled in the direct line of the stroke, the spring 22 re-acts and 60 restores the slideable block 21 to its original position, which likewise returns the ball 31 for the next stroke. The slide or indicator 38 remains in its new position recording the length of the hit, pending 65 its return to zero. In addition to

indicating the distance, should, for instance, the stroke be of a character resulting in the ball being sliced, topped, pulled or skied, this will be denoted by a displacement or turning of the machine, horizontally or vertically or both, from the original direction or position.

If the energy of the ball 31 should exceed the resistance offered by the spring 22 encompassing the rod, the spring 22 interposed in the cord connection 28 will operate to absorb it. In this case the effect is that of a hammer stroke, and the indicator 38 travels further than the slideable block 21, thus making the record.

From the foregoing it will be manifest that the mere detail construction of a machine incorporating the invention may be modified in sundry ways without, however, departing from its characteristic feature or main essential. This is exemplified in Figs. 3 to 10 inclusive to which I will now refer.

In this example, as in the other, the support comprises a base and a standard. The base, however, is now of a compound structure inasmuch as it is composed of a tubular member 11 and a bar 11^a in spaced relation thereto, instead of a single flat bar. The components 11 and 11^a are each of circular transverse section, and they are united at the ends by the rectangular members or blocks 18 and 19 in the form of plates, the member 11 being let into each, and the member 11^a screwed to each as shown at 11^b and 11^c, respectively, in Figs. 4 and 5. These members 18 and 19 are, in turn, associated with top and bottom covers 33 and 33^a and side covers 34 and 34^a, the whole constituting 90 a hollow oblong structure as clearly shown in Figs. 6, 8, 9 and 10.

The standard 12 is constituted by an upright forked bracket 14 associated with the disc constituting the turntable 15 110 which is secured to the floor, or a stake, or other base. The basal tube 11 is pivoted at 13 to and between the arms of the bracket 14 forming the standard 12, and the two are connected by the spring 115 17 maintaining the support in the normal horizontal position. Suitably, the spring 17 is enclosed in a telescopic casing 17^a.

The rod 20, the movable or slideable 120 member 21 and the spring 22 are, in general, constituted and arranged as in the other example, though there are sundry modifications which I will now explain. The most striking modification 125 is that relative to the spring 22, consequently I will refer to it first. As is illustrated in Figures 4 and 5, the spring 22 is not of the simple kind adopted in the other machine represented in Figures 13.)

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1 and 2, but is of a compound type inasmuch as it consists of two separate elements disposed to the right and the left of a common interposed abutment 21^c 5 slidable on the rod 20 in unison with the member 21 which, relatively, may be termed the primary member. The distant ends of the two-part spring 22 bear as before against the member 21 in the 10 case of the right hand portion, and the end block 18 in the case of the left hand portion. This left hand portion is shorter and stronger than its complementary portion, thereby operating as a 15 buffer to it in the case of full shots. This two-part structure of the spring 22 also tends to obviate binding or buckling when complete, or approximately complete, compression obtains.

20 The rod 20 is secured to each of the end members 18 and 19 by a screw 20^a. The rod 20 is, with advantage, provided with a longitudinal slot in which is positioned a more or less co-extensive flat 25 spring for contacting with the inner periphery of the two parts of the spring 22. This arrangement, which is represented at 20^b in Figure 9, presents a useful 30 resistance, control or retardation to the compression of the spring 22, as well as to the succeeding extension thereof, thus slowing or cushioning the speed of rebound of the ball 31.

The member 21 is in the form of a 35 block, and is provided with a forked arm 21^a designed to embrace the basal member 11^a; thus the member 21 is effectually stabilised in its reciprocation. The 40 chief function of this arm 21^a, however, is to operate the pointer 38 which projects through the slot 35 in the cover 34 from a boss 38^a slidably mounted on the basal member 11^a. The graduations 45 complementary to the pointer 38 are provided on a strip 37 secured to the cover 34 above the slot 35, therein. Preferably, the face of the member 21 bearing upon the rod 20, and the like face of the boss 38^a of the pointer 38 contacting with 50 the basal member 11^a, is provided with a slot in which a flat spring is disposed. Such device, in the case of the pointer, is illustrated at 38^b in Figure 9, and from it the application to the member 21 55 will be apparent. The device is a well-known resistance or retarding expedient, and as such it functions in connection with the member 21 and the pointer 38 so as to ensure uniform operation. In the 60 case of the member 21, it is desirable to, as it were, cut out the resistance as the member approaches the end of its return movement so as to permit the cord 28, with the attached ball 31, to return completely home, and to meet this the end 65 of the rod 20 adjacent the member 19 is

flattened or reduced in diameter for a convenient distance to render the resistance spring of non-effect.

The member 21 carries two pulleys 26 and 27 as before, but now they are disposed horizontally instead of vertically, and each is housed in a casing 21^b which preserves the position of the cord 28. The complementary pulley 24 is situated at the end block 18, and is also furnished with a housing 24^a, but, as compared with that of the other example, it is arranged vertically and not horizontally. The cord 28 is assembled with these 75 pulleys 24, 26 and 27, spring 23, aperture 25, swivel 29, swivel eyes 28^a and 30, ball 31 and cord 32 as in the other construction of machine.

The resistance device described with 80 reference to the member 21 may be substituted by a device associated with either or both of the pulleys 26 and 27. This device may be on the dash-pot principle comprising a perforated casing applied 85 to the pulley and enclosing a paddle operable by the pulley or its axle to control inlet and outlet of air to and from the casing.

Alternatively, the device may take the 90 form represented in Fig. 11 or in Fig. 12 to which I will now refer.

According to the construction shown 95 in Fig. 11, the pulley, for instance pulley 26, and its axle 26^a are revolvably mounted and supported by the housing 21^b and a casing 39 formed integral with the housing or otherwise. The axle 26^a carries an arm or paddle 40 which operates with loose shot 41 contained in 100 the casing 39. The axle 26^a may, according to the arrangement illustrated in Fig. 12, be fixed and only the pulley 26 adapted to revolve, in which case the arm or paddle 40 is secured to the side of the 105 pulley through the agency of an arm 42 which works in a slot 43 in the side of the casing 39. The width of the slot 43 is such as to prevent the escape of the shot 41. In each case, however, as the pulley 110 26 is revolved in either direction under the influence of the cord 28, the paddle 40 displaces the shot 41, and thus the 115 required resistance obtains.

Instead of the pulleys 24, 26 and 27 120 being separate as explained and illustrated, they may be constructed in one piece, so as to constitute a unit as represented in Fig. 13, the arrangement of the allied parts being correspondingly modified. The pulley 24 is centrally situated and is of a larger diameter than the pulleys 26 and 27. The unit is revolvably mounted on and at the end member 18. The cord 28 is divided, and the respective ends are attached to the pulleys 26 and 27 and the movable mem-

ber 21, the cord being designed to wind on and unwind from the pulleys 26 and 27. The cord 32 of the ball 31 is similarly associated with the pulley 24; 5 in repose it is wound upon the pulley. Therefore, when the ball 31 is hit the cord 32 is unwound and rotates the pulley 24, whereupon the pulleys 26 and 27 revolve and wind up the divided cord 28 10 with the result that, as before, the movable member 21 is moved in opposition to the spring 22 to record the distance of the hit.

Instead of the movable member 21 and 15 spring 22 being assembled as described, the arrangement represented in Fig. 14 may be adopted. Here the spring 22 is replaced by a spring 22^a which is secured at one extremity to the end member 18, 20 and at the other extremity to a cord 44 led to and over a pulley 45 supported at and by the end member 19, and finally connected to the movable member 21. The member 21, which slides over the 25 rod 20 as before, is associated with the cord and pulley arrangement described with reference to Fig. 13. When the ball 31 is hit, the member 21 moves outwards against the spring 22^a which 30 returns it, all as before.

The lubrication of the spring 22 and other necessary parts may be attained in any customary manner. For instance, a 35 slide-controlled inlet or inlets may be provided as and where required in any of the covers 33, 33^a, 34 and 34^a, or, alternatively, the rods 11^a and 20 may be 40 replaced by tubes plugged at the ends and perforated at intervals along their length for the reception and discharge of lubricant supplied to a cup fitted at one or both of their ends.

In a modification, the base 11 may be 45 pivoted directly to the turntable which, in turn, is secured to a block or pillar fixed to the floor or sunk in the ground, and of a height presenting the necessary elevation or altitude.

Again, instead of the base 11, blocks 50 18 and 19, and covers 33, 33^a, 34 and 34^a being as a whole, of a rectangular transverse section, they may be constructed to give a circular tubular section, a segmental portion being graduated and 55 slotted to accommodate the recording slide or indicator 38.

The ball 31 may be secured to the cord 32 in sundry ways. One appropriate way is illustrated in Fig. 15 which comprehends a specially-manufactured ball 60 of standard weight. This ball comprises the golf-ball proper 46 of an ordinary type, but of reduced diameter and weight

as compared with the standard ball, and 65 an enclosing casing 47 therefor of gutta percha or other material. Between the ball 46 and the casing 47 a tape 48 of strong and durable material, such as leather, is interposed and its two ends drawn together and led to the exterior of the casing 47 where they are looped as indicated at 49 to receive the cord 28.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A golf-practising machine and the like comprising a turnable support, a rod carried by fixed end members of the support, a member on and slidable over the rod, a spring encircling the rod and abutting at its opposite ends against the slidable member and a fixed end member, a flexible connector operatively associated with the slidable member, the fixed member and the playing ball, and a recording device in operable relation with the slidable member.

2. A golf-practising machine and the like comprising a support consisting of a standard mounted on a turntable and a base pivotally connected to the standard, end members on the base carrying a stationary rod, a member on and slidable over the rod, a spring freely encircling the rod and abutting at its ends against the slidable block and an end block, pulleys on or about the members, a flexible connector wound round the pulleys and connected at its opposite ends to an end member through the agency of a spring and to the playing ball, an indicator adapted to be actuated by the slidable member, and a scale complementary to the indicator.

3. The combination of parts constituting a complete golf-practising machine and the like and constructed arranged and adapted to operate substantially as described with reference to, and as illustrated in, Figs. 1 and 2 of the accompanying drawings, and subject to the modification explained with regard to, and shown in, Figs. 3 to 14 thereof.

4. For use in, and with, a machine of the kind claimed in the preceding claims, a ball constituted and adapted for attachment to the cord 28, substantially as described with reference to, and as represented in, Figure 15 of the accompanying drawings.

Dated this 28th day of December, 1922.
MEWBURN, ELLIS & Co.,
70-72, Chancery Lane, London, W.C. 2, 125
Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale]

Fig.1

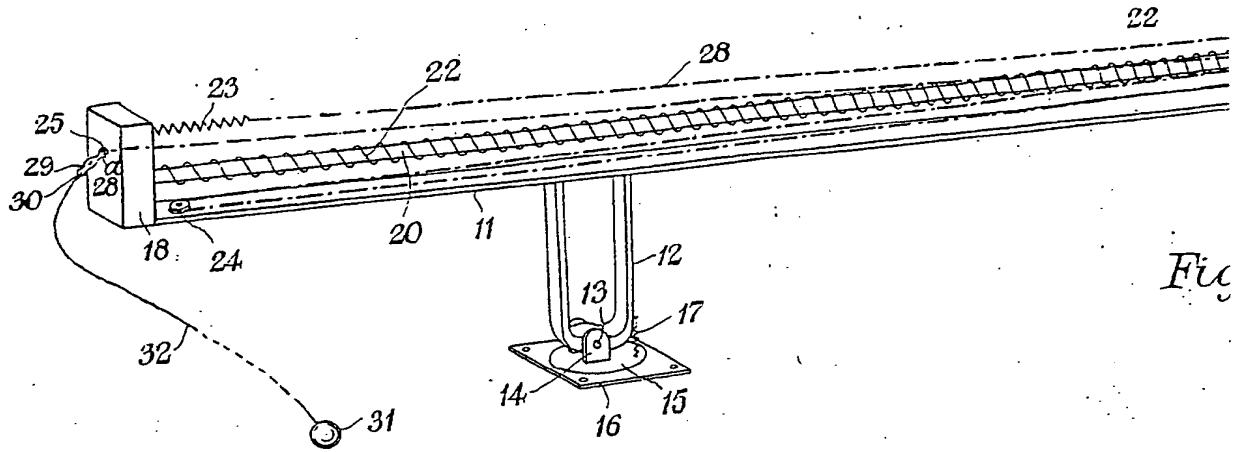
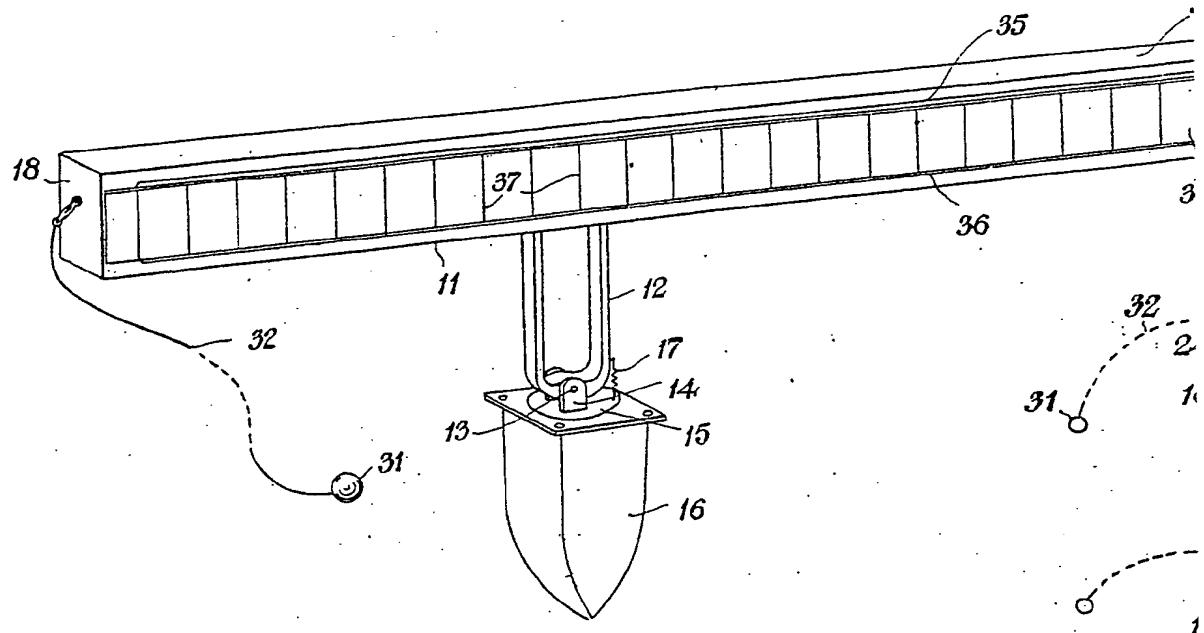


Fig.

Fig.2.



1.

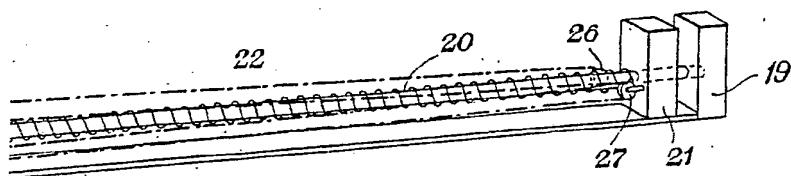


Fig. 15.

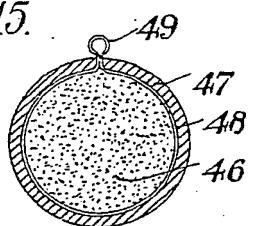


Fig. 11.

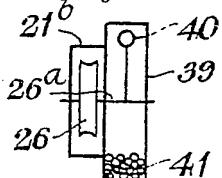
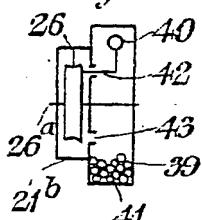


Fig. 12.



1.2.

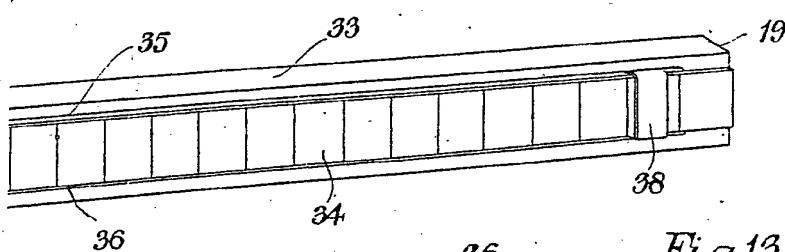


Fig. 13.

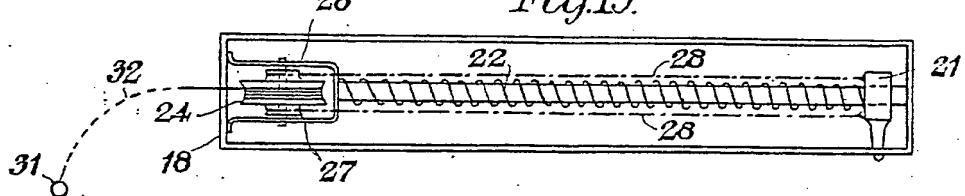


Fig. 14.

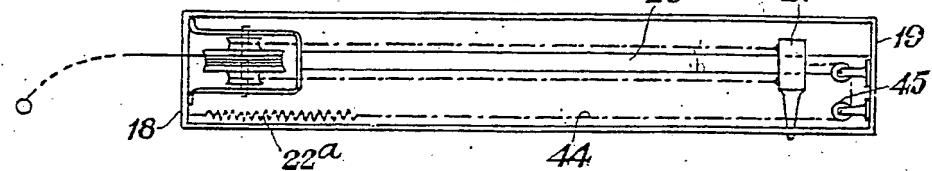


Fig.1.

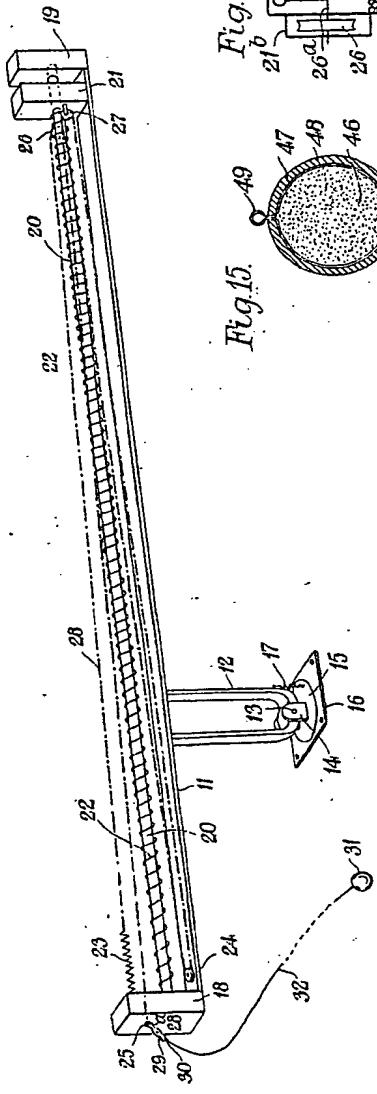


Fig.1.

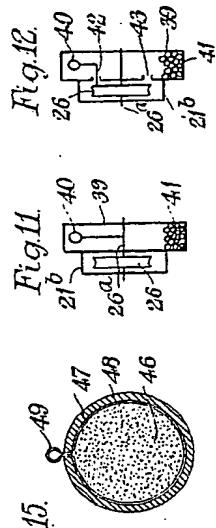


Fig.12.

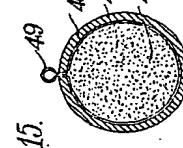
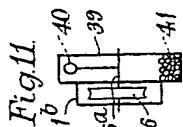


Fig.2.

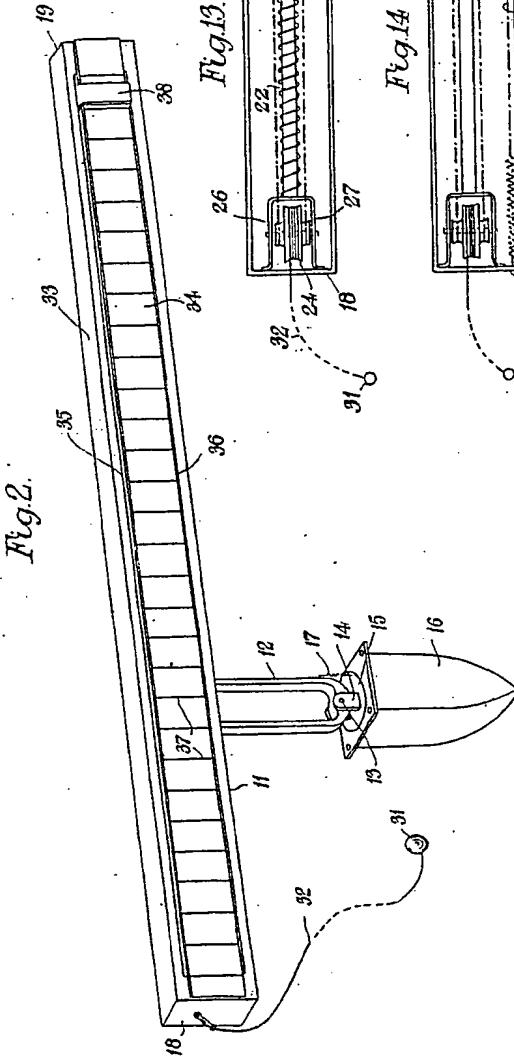
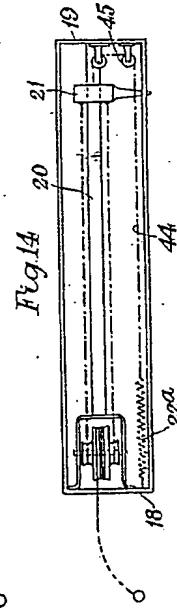
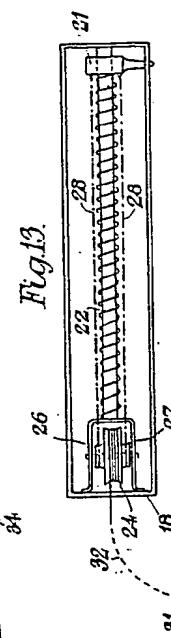


Fig.13.



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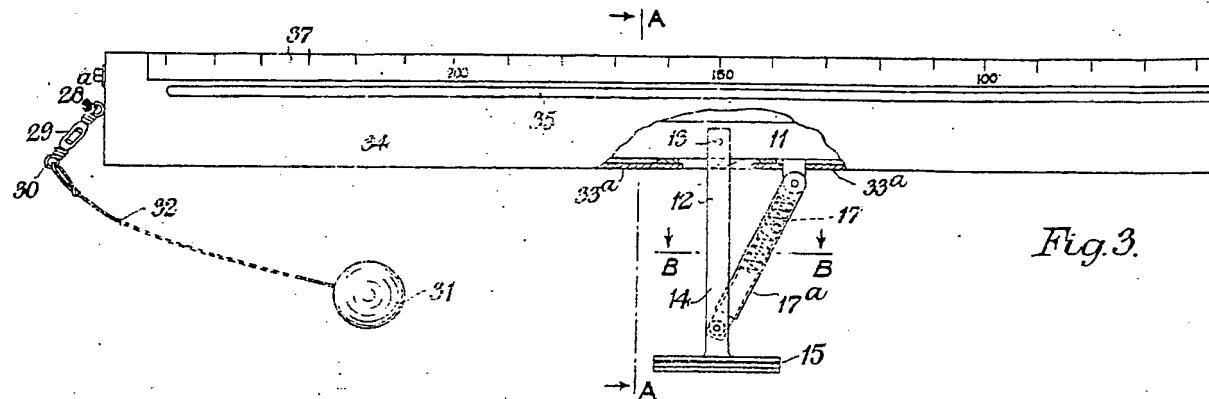


Fig. 3.

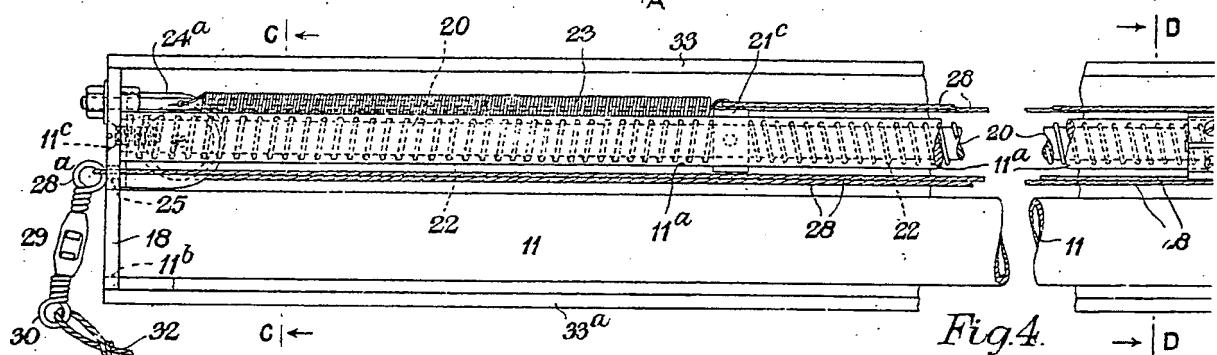


Fig. 4.

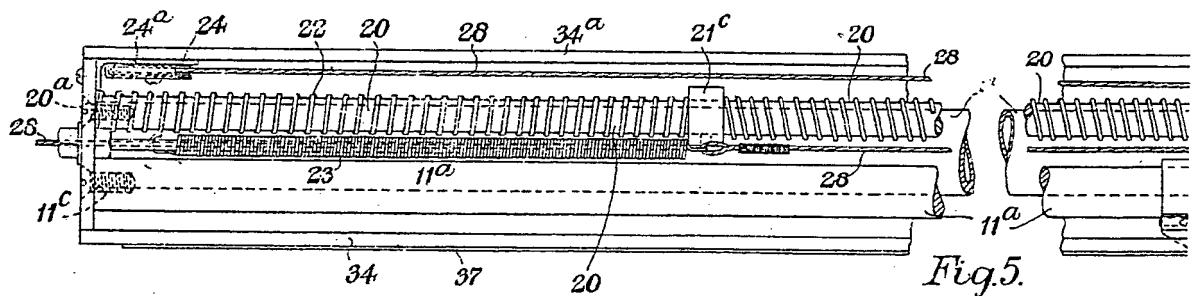


Fig. 5.

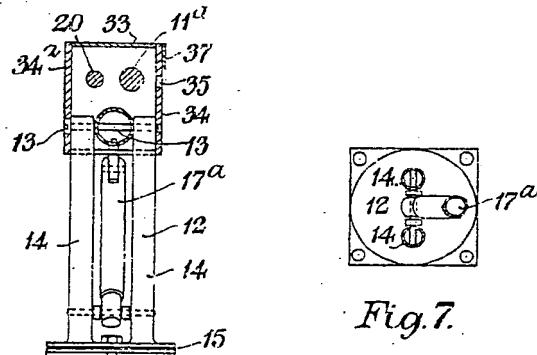


Fig. 6.

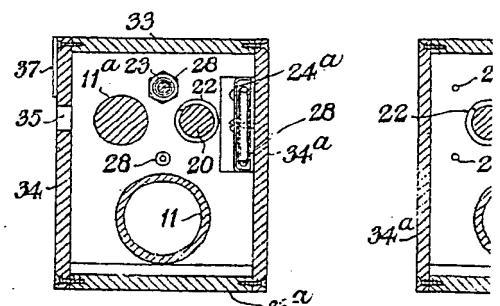


Fig. 8.

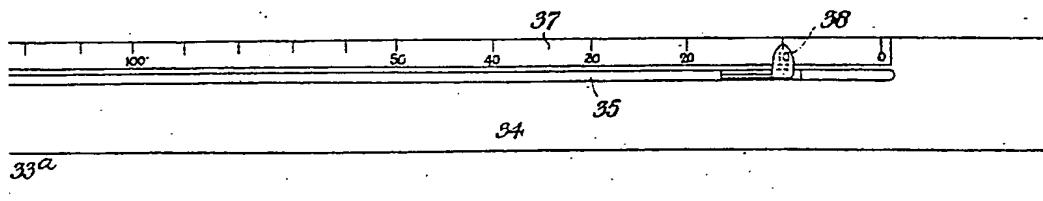


Fig. 3.

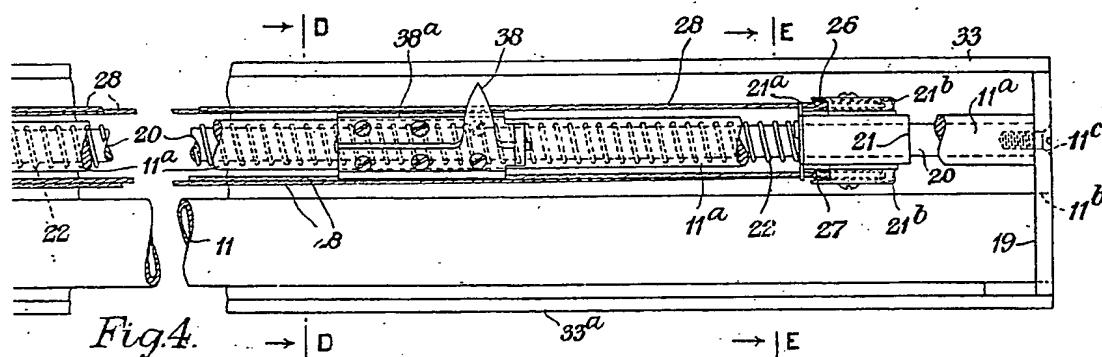


Fig. 4. → | D → | E

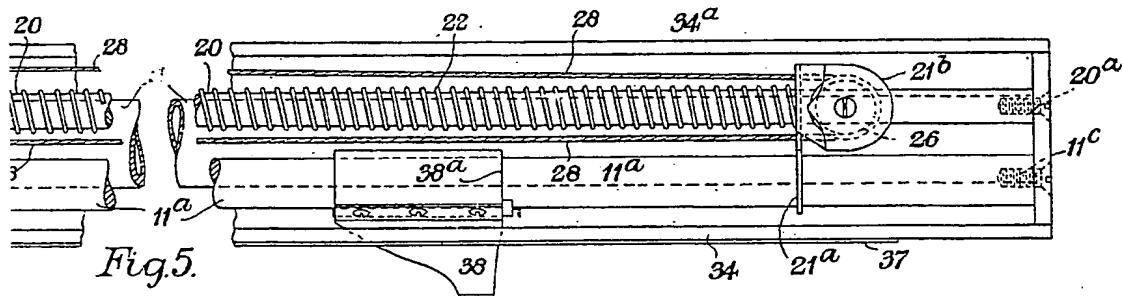


Fig. 5.

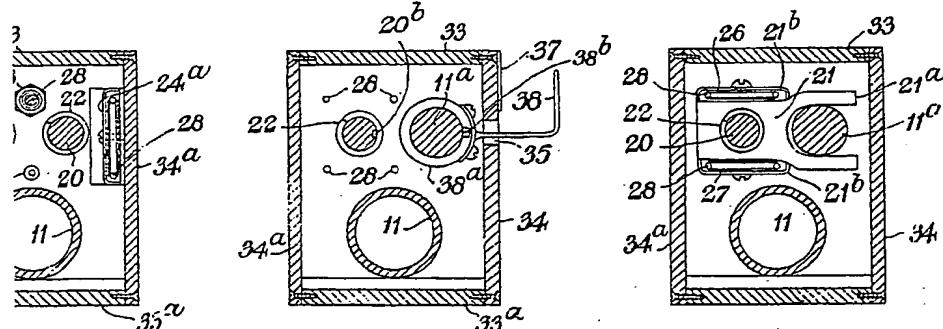


Fig. 8.

Fig. 9.

Fig. 10.

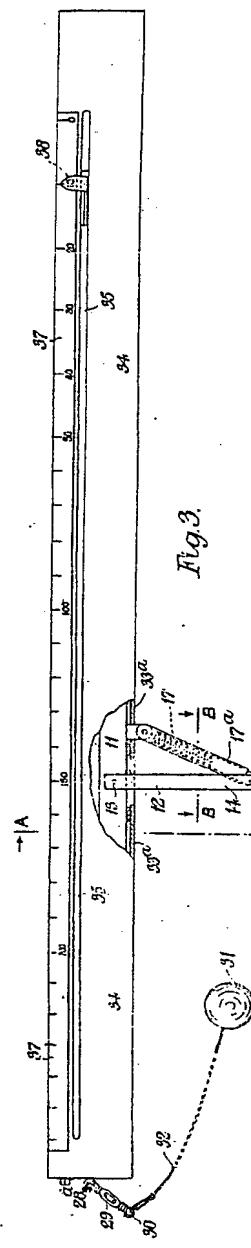


Fig. 3.

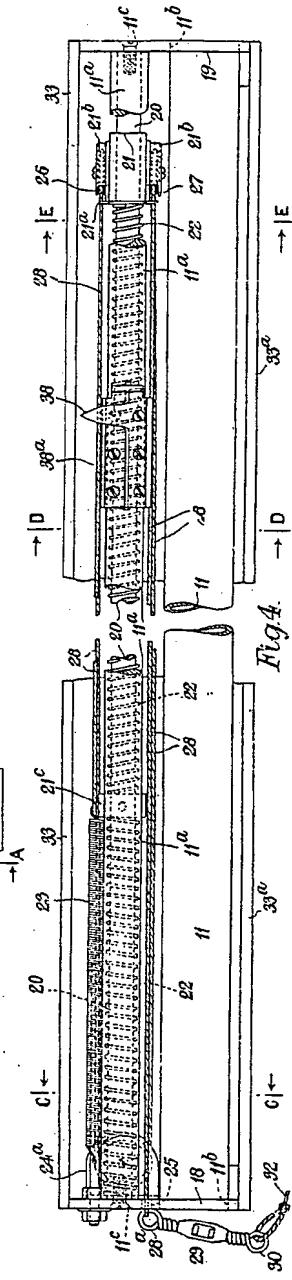


Fig. 4. → D → 33° → E

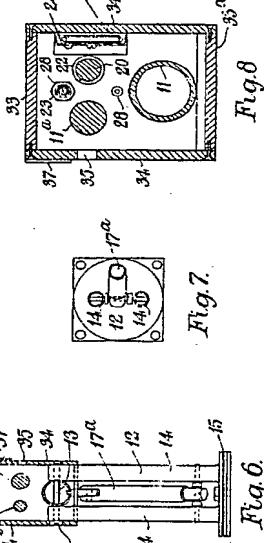
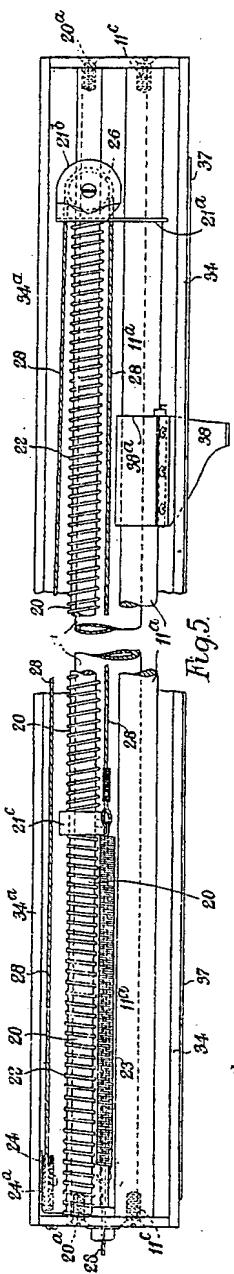


Fig. 10.

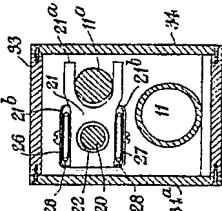


Fig. 9.



Fig. 7.

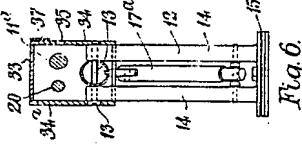


Fig. 6.

[This Drawing is a reproduction of the Original on a reduced scale.]